CLAIMS

1. A device for substantially reducing the concentration of a low molecular weight compound in a biological composition, wherein the device comprises an inert matrix containing highly adsorbent particles, and wherein the highly adsorbent particles range from about 1 μm to about 200 μm in diameter, and wherein the biological composition treated with the device maintains suitable biological activity, and wherein the device is useful in a flow process.

2. A device according to claim 1, wherein the adsorbent material is non-fibrous.

3. A device according to claim 2, wherein the particulate adsorbent material is synthetic and polymeric, and wherein the adsorbent particles possess superior wetting properties.

4. A device according to claim 3, wherein the adsorbent particles comprise a hypercrosslinked polystyrene network.

5. A device according to claim 2, wherein the particulate adsorbent is carbonaceous.

6. A device according to claim 5, wherein the carbonaceous particulate adsorbent is activated carbon.

7. A device according to claim 6, wherein the activated carbon particulate adsorbent has a surface area greater than about 950 m^2/g.

8. A device according to claim 6, wherein the activated carbon particulate adsorbent has a surface area greater than about 1200 m^2/g.

9. A device according to claim 8, wherein the activated carbon particulate adsorbent is formed by steam activation.

10. A device according to claim 9, wherein the activated carbon particulate adsorbent is further formed from coconut shells.

11. A device according to claim 1, wherein the particle containing matrix is at least 3 mm thick.

12. A device according to claim 11, wherein the particle containing matrix is composed of a plurality of layers.

13. A device according to claim 1, wherein the device, or a component of the device, has been treated to enhance functionality, and wherein the enhanced functionality is biocompatibility, hemocompatibility or wettability.

14. A device according to claim 13, wherein a component of the device has been treated to enhance functionality, and wherein the component is the adsorption media.

15. A device according to claim 13, wherein a component of the device has been treated to enhance functionality, and wherein the component is the adsorbent material.

16. A device according to claim 13, wherein a component of the device has been treated to enhance functionality, and wherein the component is the inert matrix.

17. A device according to claim 13, wherein the treatment to enhance functionality is a surface treatment.

18. A device according to claim 1, wherein the low molecular weight compound is an acridine derivative, a psoralen derivative or a dye.

19. A device according to claim 18, wherein the low molecular weight compound is an acridine derivative, and wherein the acridine derivative is N-(9-acridinyl)-β-alanine.

20. A device according to claim 18, wherein the low molecular weight compound is a psoralen derivative, and wherein the psoralen derivative is 4'(4-amino-2-oxa)butyl-4,5',8-trimethyl psoralen.

21. A device according to claim 1, wherein the low molecular weight compound is a biological response modifier.

22. A device according to claim 21, wherein the biological response modifier is activated complement.

23. A device according to claim 1, wherein the low molecular weight compound is a quencher.

24. A device according to claim 23, wherein the quencher is glutathione.

25. A device according to claim 1, wherein the low molecular weight compound is methylene blue.

26. A device according to claim 1, wherein the treated biological composition is suitable for infusion into a human.

27. A device according to claim 1, wherein the biological composition is plasma.

28. A device according to claim 1, wherein the inert matrix is a fiber network.

29. A device according to claim 28, wherein the fiber network is composed of cellulose.

30. A device according to claim 29, wherein the adsorbent material comprises activated carbon, and wherein the particulate containing matrix is at least 3 mm thick.

31. A device according to claim 30, wherein the activated carbon is formed by steam activation of coconut shells.

32. A device according to claim 31, wherein the low molecular weight compound is an acridine derivative, a psoralen derivative or a dye, and wherein the product is suitable for infusion into a human.

33. A device according to claim 32, wherein the biological composition is plasma.

34. A device according to claim 31, wherein the low molecular weight compound is a biological response modifier, and wherein the product is suitable for infusion into a human.

35. A device according to claim 34, wherein the biological composition is plasma.

36. A device according to claim 1, wherein the inert matrix is a particulate network.

37. A device according to claim 36, wherein the adsorbent material comprises particulate hypercrosslinked polystyrene networks, and wherein the particle containing matrix is at least 3 mm thick.

38. A device according to claim 37, wherein the particle containing matrix is formed by sintering together particles of ultra-high molecular weight polyethylene with particles of hypercrosslinked polystyrene networks.

39. A device according to claim 38, wherein the low molecular weight compound is an acridine derivative, a psoralen derivative or a dye, and wherein the product is suitable for infusion into a human.

40. A device according to claim 39, wherein the biological composition is plasma.

41. A device according to claim 38, wherein the low molecular weight compound is a biological response modifier, and wherein the treated biological composition is suitable for infusion into a human.

42. A device according to claim 41, wherein the biological composition is plasma.

43. A method of reducing the concentration of a low molecular weight compound in a biological composition, wherein the biological composition treated with the device maintains suitable biological activity, comprising treating the biological composition with the device of claim 1, 31 or 38.

44. A method according to claim 43, wherein the biological composition is plasma.

45. A method according to claim 43, wherein the biological composition treated with the device is suitable for infusion into a human.

46. A method according to claim 43, wherein the biological composition flows through the device as a result of a pressure differential.

47. A method according to claim 46, wherein the pressure differential arises due to a hydrostatic head.

48. A method according to claim 46, wherein the pressure differential arises due to the use of a pump.

49. A method according to claim 46, wherein the biological composition flows through the device at a flux between about 0.1 mL/cm^2/min and about 10 mL/cm^2/min.

50. A method according to claim 49, wherein the biological composition flows through the device at a flux between about 0.2 mL/cm^2/min and about 5 mL/cm^2/min.

51. A biological composition, wherein the biological composition is suitable for infusion, and wherein the biological composition is produced by treating a biological composition with a device according to claim 1, 31 or 38.

52. A biological composition according to claim 51, wherein the biological composition comprises plasma.

53. A biological composition according to claim 52, wherein a nucleic acid targeting compound was added to the biological composition prior to treatment with the device.

54. A biological composition according to claim 52, wherein a psoralen derivative was added to the biological composition prior to treatment with the device.

55. A biological composition according to claim 52, wherein an acridine derivative was added to the biological composition prior to treatment with the device.

56. A biological composition according to claim 52, wherein methylene blue was added to the biological composition prior to treatment with the device.

57. A device for reducing the concentration of small organic compounds in a blood product while substantially maintaining a desired biological activity of the blood product, the device comprising highly porous adsorbent particles, wherein the adsorbent particles are immobilized by an inert matrix.

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